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ABSTRACT

Recent research on language learning and its implications for language teachers and others interested in language pedagogy and practice is summarized. The review takes the form of the following pedagogical questions: In what ways does knowing one language help and hinder the learning of a second?; What is "comprehensible input," and is it really all that is necessary for successful second language acquisition?; What can be done to encourage participation among students who seldom ask questions or initiate interaction?; Which is more helpful to acquisition: teacher-led instruction or group work?; How much attention should be given to explicit grammar instruction?; Should students drill and practice new structures?; Does correction assist language learning?; How necessary to learning a language is cultural integration with its users?; Why do some students have less accurate pronunciation than others and what can be done about this?; and How can fossilized learners or "terminal twos" be helped to move beyond their current proficiency level? Responses to all these questions are supplied in terms of what research has to say to teachers, what research is still in the process of investigating, and what research has yet to do. A 48-item bibliography is included. (MSE)

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Research on language learning: How can it respond to classroom concerns?[1]

Teresa Pica

This paper summarizes recent research in language learning and its implications for language teachers and others interested in language pedagogy and practice.

Whether we are teaching language learners or carrying out research on language learning, we share a number of concerns regarding the work that we do. Often, however, these common concerns are overlooked because the enormity of our task as language teacher or researcher constrains our commitment to fulfilling both of these roles at the same time. There are exceptions, of course, but even when we *seem* to be balancing our roles as language teachers and researchers, we often find ourselves in the position of being more of one and less of the other.

As language teachers, we might find ourselves analyzing our teaching practice and our students' progress as part of the process of planning classroom activities or reorganizing course content. However, this type of research reflects very practical and personal concerns and our findings are seldom shared publicly. As researchers, we usually teach, but often do so through courses in applied linguistics or literature rather than language. Occasionally researchers, themselves experienced language teachers, have kept diaries to look introspectively at the trials and frustrations of their own classroom language learning and their relationship with their teacher. (See, e.g., Bailey, 1981; Schumann and Schumann, 1977; Schmidt, 1986; and others, summarized in Bailey and Oschner, 1983). Yet studies such as these are few and far between. And what they reveal about one individual teacher in a single classroom is certainly of interest, but may not be generalizable to other formal learning environments.

This infrequent cross-over or interchanging of roles of teacher and researcher is also found with regard to the focus of research. Researchers have generally preferred to study the learner rather than the teacher and have seldom examined both learning and teaching at the same time. As a result, we have volumes of data analysis on learners' linguistic productions and misproductions and on features of the social and linguistic environments available to them, these mostly second language (L_2) learning contexts. We also have collections of papers on how

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to teach -- how to design the instructional syllabus, create effective classroom materials, and implement practical and productive teaching procedures. However, often much of this material is based on intuition, experience, and common sense more than it is on formal data.[2]

What we have in effect is a situation in which teachers' concerns are informed by their own belief systems and often kept private. Researchers' concerns are shared primarily within the research community, and applied, not to classroom decisions, but to the interpretation of previous investigations and the design of follow-up studies. This is not to suggest that language researchers have little interest in teaching practice. As a matter of fact, many of them were teachers at one time. It was their questions and concerns about classrooms that drew many teachers away from teaching and into research in the first place. In spite of their teaching backgrounds, however, researchers have felt reluctant to take their findings about language learning and apply them directly to the classroom.

Actually, there are very good reasons for this reluctance. The generalizability of language learning research to the classroom has been greatly limited by its focus and context. Much of this research, especially that which has been used to generate and support theoretical claims about the learning process, has been restricted to *second* language learners and their interlocutors, speaking *outside the classroom* and *outside the roles of student and teacher.* The focus of analysis has been mainly on the learner and features of the learner's interlanguage rather than the teacher or the learner-teacher relationship. Although there is a large and growing body of exceptions (see Chaudron 1988 for numerous examples of research on language classrooms), most of the extant data used to ground current theories of language acquisition are skewed toward adult language learners in second language environments. As a result, this research cannot be safely applied to the instruction of foreign language learners in particular or to teaching decisions in general.

Further, what is known about input to learners has come primarily from interview and conversational data, gathered outside the classroom context. It is only recently that *classroom* input has come under study. Researchers such as Long and Sato (1983), Doughty and Pica (1986), and Pica and Doughty (1985a, b) have found features of the L2 available to learners in the classroom to be quite different in structure, complexity and content compared to L2 input addressed to learners engaged in conversations and interviews with native speakers. So again, there is not much basis for application of overall findings on input to what goes on in

classrooms, especially if the classroom is to be the learner's only source of input, as is the case in the foreign language study.

Finally, classrooms are complicated social communities. Individual learners come to them with their own constellation of native language and culture, proficiency level, learning style, motivation and attitudes toward language learning. Individual teachers have their own distinctive styles, and use many different materials and teaching techniques in the course of a single classroom session, countless others in a given week or semester. In attempting to maintain standards of internal consistency, most researchers have investigated only one feature of language learning at a time, for example, learning style or native language transfer, and worked hard to control for all others. Unfortunately, there is no guarantee that the impact of any one feature of language learning, when studied in isolation, will have the same impact when made available in the classroom. In fact, it is unlikely that this will be the case. This is another reason why so many researchers warn that their results should not be applied directly when making classroom decisions. It's not that they feel apathy toward teachers and instructional concerns. It is just so difficult to do research which leads to results that are valid and reliable with regard to statistical criteria and which, at the same time, have direct application to the classroom.

In spite of all this apparent detachment of the research community from the classroom, I believe there are a number of key concerns which puzzle classroom teachers and to which language acquisition researchers can respond. In other words, I feel that if we view the work and responsibility of researchers as one of *responding* to classroom concerns rather than applying their findings directly to the classroom, then researchers can have and further, can *want* to have a great deal to say to teachers. These teaching concerns, which I have referred to elsewhere as "the ten most wanted list in language teaching," (Pica in press) are listed below.

The following review will present these concerns as teachers' questions, then respond to them in terms of what research has to say to teachers, what research has not yet told them but is in the process of investigating, and what research has yet to do. The research presented has come from studies on the learning of English as a second and foreign language as well as the learning of other languages in second and foreign language contexts. I will then discuss the papers of Jorden, Barson, and Klahn both as they pertain to these questions and in relation to the new questions generated by the classrooms they describe.

What questions are of concern to teachers?

1. In what ways does knowing one language help and hinder the learning of a second?
2. What is "comprehensible input" and is it really all that is necessary for successful second language acquisition?
3. What can be done to encourage participation among students who seldom ask questions or initiate interaction?
4. Which is more helpful to acquisition: teacher-led instruction or group work?
5. Should students drill and practice new structures?
6. How much attention should be given to explicit grammar instruction?
7. Does correction assist language learning?
8. How necessary to learning a language is cultural integration with its users?
9. Why do some students have less accurate pronunciation than others and what can be done about this?
10. How can fossilized learners and "terminal twos" be helped to move beyond their current L2 level?

1. In what ways does knowing one language help and hinder the learning of a second?

Researchers have responded to this question in a variety of ways. Working out of a tradition known as Contrastive Analysis, much of the early work in applied linguistics focused on forms and features of the languages learned in classrooms rather than on classroom learners themselves. It was believed that native language could predict difficulty in second or foreign language learning and that therefore the work of the researcher was to compare the native language of the learner with the language the learner wanted to acquire. Influenced by Charles Fries (1945) and Robert Lado (1957), researchers made inventories of the sounds, words, and structures of students' first and foreign languages and suggested teaching decisions in accordance with similiarities and differences presented in these inventories. Their ideas and their methods of analysis are represented in the following quote from Lado (1957): "We will assume that the student who comes in contact with a foreign language will find some features of it quite easy and others extremely difficult. Those elements that are similar to his native language will be simple for him, and those elements that are different will be difficult" (p. 2) .

It is now widely acknowledged by both teachers and researchers that the prediction principles set forth by Lado could not be relied upon in the classroom. Some cases in point: (1) Even though there are similarities between both English and Spanish negation and articles systems, native speakers of English come to learn Spanish negation patterns quite quickly, while their mastery of the Spanish article system takes much more time. (2) Many learners, e.g. from Japanese L1 background, come to master the English system relatively quickly, despite vast differences between their L1 negation system and that of English. They accomplish this much faster, in fact, than those learners with negation structures similar to English, e.g., Spanish, Russian, and Italian. (3) Most learners find that internalizing the rules for using articles in another language is an arduous and protracted process, no matter how many similarities or differences between the other language and their first language. In short, countless studies of and practical experiences in the learning and teaching of languages have shown that predictions of Contrastive Analysis do not always hold. L1-L2 differences do not necessarily imply learner difficulties and similiarities between L1 and L2 do not guarantee ease of learning.

Subsequent researchers have come to show that the learner's native language plays an important role in language learning, but it is a highly differentiated one, much more intricate than that predicted through Contrastive Analysis. Thus Zobl (1980) has argued that native language plays a different role at specific stages of development. As he examined negation data from second and foreign language contexts, Zobl noted that, cross-linguistically, all learners produced no +verb (I no see [bus]) as a very early stage of L2 negation development. Those for whom negator +verb was a grammatically precise way to express negation in their native language remained at this early stage much longer than those who expressed negation in other ways, e.g., verb + negator. This helped to explain why native speakers of languages such as Spanish, Russian, and Italian, for whom no + verb is the target in their language had more difficulty in mastering English negation than native Japanese speakers who use the very different post-utterance negation (I [bus] see no).

Zobl also noted that the complexities and uniqueness of the article system of individual languages made mastery difficult for all learners, regardless of whether they used an article system in their first language. Again, this was why all learners of English, including Spanish and Japanese speakers, had difficulty with acquiring accuracy in this area.

Other researchers have noted that learners' L1 is not always in itself the most powerful influence on language development, but can be suppressed, enhanced or otherwise modified by the contributions of a broad range of linguistic, psychosocial, and cultural factors. Thus Tarone and others have noted ways in which universal aspects of language and language learning can influence the acquisition process. As early as 1980, she reviewed work suggesting that universal tendencies toward simplification played an important role in the speech production of learners. Looking at English L2 learners from a variety of L1 backgrounds, she found that all of them tended to simplify L2 consonant clusters toward open syllable (CV) patterns producing, e.g., pəlace instead of place , whether or not they could produce such consonant clusters in their native language.

Sato (1984) found that certain L2 linguistic contexts were especially sensitive to L1 influence. One of these was L2 final consonant clusters: If the learner's L1 had only final consonants and/or open syllables, but no clusters, the learner would reduce L2 final clusters to a single consonant. Thus the learner might say, He like me instead of He liked me or He likes me. An utterance such as this could pose problems for both the listener, puzzled by the learner's intention, as well as the teacher, concerned as to whether omission of -ed or -s endings reflected pronunciation or grammatical difficulties or both.

Other researchers have identified links between first language influence and sociolinguistic factors. Dickerson (1975) found less evidence of L1 transfer in learner's speech in formal speaking situations; she suggested that such situations allow more close attention to speech. For example, English learners L2 pronunciation was more English-like when they read a list of words than when they engaged in conversation. Other studies have shown somewhat opposite results, i.e., that learners indeed transferred L1 sounds into their formal L2 speech, but only under the condition that the transferred sounds were associated with formal situations in the learners' L1. Beebe (1980), for example, found unexpectedly that L1 speakers of Thai produced a trilled (non-target like) r in English L2 syllable-initial positions in formal L2 speaking situations, but not in informal situations. To explain this behavior, Beebe suggested that since r trilling is a prestige feature in spoken Thai, these speakers may have been transferring it into English L2 when asked to speak in formal contexts.

Beebe and Zuengler (1983), in looking at a variety of language learners interacting with different interlocutors, found that learners' use of L1 vs. L2 linguistic features fluctuated according to their degree of divergence and

convergence with their interlocutor. No single interlocutor feature could be held solely responsible for such a result, however. Rather, interlanguage varied in relation to ethnicity, gender, L1 background, expertise on a topic, and a host of situational variables.

How do these findings respond to teachers' concerns about the role of students' first language in the learning process? Clearly the influence of the learner's L1 is highly differentiated and not as simplistic as was previously thought. Teachers need to think about not only the features of their students' L1, but also about universal aspects of language and language learning. Individual psychosocial and cultural features must be given considerable thought, especially in classrooms where learners interact with different interlocutors, not just their teachers, but a wide range of other language learners. In designing classroom materials and tasks and in placing expectations on their students' progress, L1 and L2 comparison inventories are simply not enough and may, in fact be misleading.

2. What is "comprehensible input" and is it really all that is necessary for successful second language acquisition?

Until recently, the term, "comprehensible input" was not within the repertoire of second or foreign language teachers. However, with the publication of *The Natural Approach* (1983), this term became synonymous with what was considered the goal of effective language instruction. The Natural Approach has had especially widespread appeal because it reflects both second and foreign language teaching concerns emanating from the backgrounds of its authors, Stephen Krashen and Tracey Terrell.

The driving force behind the Natural Approach is largely that of Krashen's Monitor Theory of language acquisition. Krashen makes a distinction between L2 *input* to learners and their actual linguistic *intake* : He argues that second or foreign language input must be comprehended as intake in order to assist the acquisition process. He also makes claims about i + 1: The best input for acquisition must be (a) meaningful and (b) slightly beyond (+1) the learner's current level of language development (*i*), but made comprehensible through contextual supports. According to Krashen, learners acquire *+1* when they (1) notice a difference between *i* and *i +1*, (2) then hypothesize is that *i + 1* is a target feature, and (3) finally confirm their hypothesis when hearing *i + 1* again in input. (See Krashen 1985 for a full elaboration of this process).

Not all researchers who have studied learners in classrooms agree with Krashen's ideas about the sufficiency of comprehension to successful language acquisition. Nor, given its state of inadequate operationalization, can any researchers comfortably test Krashen's hypothesis about the *i + 1* construct. However, the overall consensus among researchers is that the learner's linguistic environment is a major contributor to the acquisition process. They have asked how input within the learner's environment can be made comprehensible and have organized their research to respond to this question.

Long (1985) has argued that input is made comprehensible through modified and negotiated *interaction* in which learners seek clarification, confirmation, and repetition of L2 utterances they do not understand. Through these interactional modifications, linguistic adjustments such as repetitions and rephrasings are provided to aid the comprehensibility of unclear input. Research by Long and others (e.g., Blau 1980) has shown that if such adjustments are made a priori to text or lecturette input, they aid the learner's comprehension. Additional research by Pica, Young, and Doughty (1987) has strengthened Long's claims regarding negotiated interaction and its effect on input comprehension. They found that learners who heard linguistically unmodified input (directions to a task), with opportunities to negotiate interaction, e.g., by seeking clarification of direction input with the direction giver, understood it better than learners who heard a linguistically simplified version of the direction input, but were offered no opportunity for such clarification requests.

Why was there better comprehension of the unmodified direction input? Results showed that negotiation between the learners and their interlocutors led directly to modifications in input complexity and redundancy. In the study noted above, direction input was thus made comprehensible without the need for a priori modification by the researcher. A further possibility posed, but not tested by the researchers was that negotiated interaction simply increased the amount of time available to the learners for processing the directions. In other words, it was not the linguistic modifications that were crucial to understanding. Rather, the stretch of time the direction giver took in modifying the directions gave learners an opportunity to process the original direction input so that they could understand it.

How do these research findings respond to the classroom teacher's concerns about comprehensible input? They suggest that teaching a second or foreign language should be an interactive process between teachers and students and among the students themselves. Students need to comprehend the new language, but can

best do this when allowed to ask about what it is that they do not understand rather than rely on their teacher or textbook to anticipate areas of comprehension difficulty and simplify a priori. What these results also suggest is that simply giving students enough wait time to ask questions about or to internalize input that they do not initially understand may have very positive results on their comprehension, without the need for much talk on the teacher's part at all.

In spite of these encouraging suggestions, further research is needed on the longer term effects of comprehension on learner proficiency. If we are to provide a basis for the theoretical importance of negotiated interaction to language comprehension and ultimately, to language acquisition, we must be able to demonstrate the effects of interactional contributions to comprehension over time. To do this requires careful monitoring of both all input learners receive and their opportunities to hear input adjusted to their comprehension level. This type of monitoring is virtually impossible to carry out in second language environments, in which most of the comprehension research has been conducted so far. Learners in second language settings are engaged with numerous interlocutors and are exposed to various input sources which are virtually impossible for a researcher to keep track of. Fortunately, the study of foreign language learners in classroom environments provides an excellent focus for further research on comprehension and input comprehensiblity. Thus, additional and more informed responses to teachers' questions regarding the importance and sufficiency of comprehensible input to successful language learning await research from the foreign language classroom.

3. What can be done to encourage participation among students who seldom ask questions or initiate interaction?

The importance placed on interaction in language comprehension and second language acquisition has activated a need for research comparing interactive vs. non-interactive classroom learners. However, here, research results of relevance to teachers are mixed and often contradictory. Seliger (1977) found that learners who initiated and participated in interactions which required using L2 English in and out of the classroom (High Input Generators or HIGS) made more rapid progress and fewer L1 transfer errors than learners who interacted little (Low Input Generators, a.k.a. LIGS). On the other hand, in a case study of one classroom, Allwright (1980) found that the student who made the most progress in second language development was one who initiated and engaged in less interaction than the most interactive

student in the class. This finding suggested that quieter learners might benefit from the input supplied by their more interactive classmates.

A later classroom study by Pica (1989) found support for Allwright's results. In studying two English L2 classrooms, Pica found that as long as the students were at an intermediate level of L2 proficiency, they could comprehend the input of teacher and peers both by interacting directly and by simply observing interaction among them. However, for less proficient learners in the same classrooms, interaction in the form of opportunities to seek clarification of message content was crucial to their comprehension.

In the midst of these competing findings on the need for learners to interact in order to comprehend a second language, it is important to keep in mind that individual learners have their own ways of drawing input for comprehension. As Wenden (1986) reminds us, based on her extensive study of language learner strategies, learners direct their own learning by diagnosing needs, defining goals, identifying facilitating tasks and strategies, setting priorities, judging progress, changing approaches to learning, when necessary. Learners bring their own individual styles to the acquisition process. Language classroom research needs to probe more deeply into the differential ways that learners find success in their language learning. This is why it is too soon for teachers to turn to the results of a handful of studies on the effects of interaction when making classroom decisions in this area.

4. Which is more helpful to acquisition: teacher-led instruction or group work?

Given the increased emphasis on interaction in the classroom and continued teacher reservation about student group work in the second and foreign language classroom, it seems surprising that so little research has been conducted on its relationship to successful language learning. A rationale for arranging students into groups is provided by only a handful of relevant studies. Among these, Varonis and Gass (1985) have shown that when non-native speakers converse with other non-native speakers, as opposed to native speaking interlocutors, they experience a greater degree of involvement in their interaction, are more persistent in their attempts to get their ideas across, and hence work harder to modify their interlanguage toward greater comprehensibility. Varonis and Gass have found that this pattern becomes increasingly apparent when linguistically and culturally divergent speakers engage in L2 interaction.

In another, much earlier study of learner peer interaction, this one conducted inside a foreign language classroom (among Spanish L1 learners of English in Mexico City), Long, Adams, McLean, and Castanos (1976) found that group work enabled students to use language more communicatively and across a broader range of functions than did lock-step, teacher-led classroom interaction. Thus, the few studies which have been conducted so far appear to favor group work. However, since they have examined a limited range of experiences relevant to language learning. Clearly, additional research on this key area of concern to teachers is in order.

One of teachers' greatest reservations about student group work is that learners will incorporate each other's errors into their own production when working in groups. What Bruton and Samuda (1980) found, however, was that learners' incorporation of other learners' errors into their own production was very rare. What was far more prevalent were learners' adjustments toward more correct production made on their own as well as in response to their classmates' feedback. Similar results were found by Gass and Varonis (in press); the English L2 learners in their study would correct each other's interlanguage errors, and the corrected learners would incorporate the corrections. Such incorporation did not necessarily occur immediately in a follow-up response, but rather several turns later. Again, this suggests a need to study latency effects of peer correction over a long period of time. As suggested in the discussion of research on comprehension under Question 2, above, foreign language classrooms can provide a most appropriate context for this type of long-range research.

Still, not all research on group work is completely supportive of this classroom practice. Doughty and Pica (1986) and Pica and Doughty (1985 a, b) found that it was the learning tasks or activities in which groups engaged, rather than the group pattern, itself, which was critical in effecting the kinds of interaction considered suitable for their learning. Most effective were tasks which required a two way exchange of information, thereby requiring all members to participate. Tasks which focused on problem solving or discussion tended to favor participation among more assertive students, often to the point of monologue. Such behavior left other group members with few opportunities to attempt L2 production or to signal difficulty with L2 comprehension.

Chesterfield et al. (1983) addressed the influence of teachers and peers on language acquisition. Looking at bilingual preschool programs, they found that in classrooms where the majority of students were English speaking, greater

proficiency in English L2 was related to peer interaction more than to teacher interaction. In classrooms where the majority of students were Spanish speaking, greater proficiency in English L2 was related more to teacher interaction than to peer interaction. This finding seems particularly appropriate to foreign language classrooms where learners tend to be homogeneous in the native language, or at least share a common language other than the one they are studying. Working in groups can lead them to turn to their common language and avoid using the second, unless their teacher carefully monitors their language choice.

These various findings point to a significant role for group work in the language classroom. What little research has been done however, suggests that group work by no means guarantees success in language learning, but needs to be tempered in light of social and linguistic conditions in the classroom and the tasks given to learners in their groups. The influence of these social, linguistic, and pedagogical variables, many of which are as yet unstudied, may be why teachers continue to reservations about employing group work in their classrooms. Further research is needed in order to help teachers make more informed decisions about the benefits of this practice to their students' learning.

5. How much attention should be given to explicit grammar instruction?

Again, given recent emphasis on classroom interaction and group work, much recent literature on language teaching methods and well as textbooks for learners has tended to upgrade the importance of activities for meaningful use of the new language and downgrade the contributions made by exercises which emphasize practice of grammar rules. In addition, through what might be considered this "strong" version of communicative language teaching, learners are believed to be able to infer the grammar rules of a new language by means of large quantities of meaningful and comprehensible input and abundant opportunities for L2 social interaction.

Unfortunately, many learners, especially those for whom the classroom is their only context for language learning, meaningful and comprehensible input and opportunities for social interaction may not be possible. Even if such input is provided, the overall amount of input and interaction targeted to individual learners will be reduced in relation to the total number of learners in the classroom. This situation suggests that learners may need a more efficient means to access the

grammar rules of the language they are trying to learn than through listening or reading experiences alone.

Once teachers make a decision toward incorporating explicit grammar instruction in the classroom or strengthen their resolve to teach grammar to their students (a "weak") version of CLT), the question remains as to selection and sequencing of grammar rules so that they can be acquired effectively. Fortunately, a handful of studies focused on this topic reveals a few guiding principles for selection and sequencing decisions based on factors of learnability, linguistic complexity, and learner-readiness.

For Pienemann (1984), for example, there are psychological constraints on language learning that affect the teachability (and hence learnability) of languages. He has shown has shown that word order sequences in German are acquired in order of increasing complexity, but only when the learner is ready, i.e., at an appropriate developmental stage. In studying learners' acquisition of German, he found, for example, that there are four stages of word order through which learners proceed sequentially, without skipping a stage:

1. Subject-Verb-Object -- He must study the book tomorrow
2. Preposing of constituents -- Tomorrow he must study the book
3. Particle movement from utterance internal to final position -- Tomorrow he must the book study
4. Inversion of elements, both utterance internal -- Tomorrow must he the book study?

The role of instruction, as Pienemann found through a longitudinal study, was to accelerate the learner's movement across the stages. Thus, the learner at stage 3 quickly moved to stage 4 if taught its rules. However instruction at the level of stage 4 did not accelerate the L2 development of the learner at stage 2. The stage 3 learner who was not taught stage 4 rules directly also moved to stage 4, based on L2 exposure, but much more slowly than the stage 3 learner given instruction.

The work of Doughty (1988) and Gaws (1982) has shown a positive effect for grammar instruction when the grammatical item was related to other items along the hierarchy of difficulty such as that shown below for relative clauses (see below)

Most Difficult

object of preposition:	The students with whom I studied passed the test
indirect object:	The students to whom you gave the book are my friends
object relative:	The students whom you saw are my friends
subject relative:	The students who did their homework passed the test

Least Difficult

What both researchers found was that the range of relative clause constructions in English could be learned faster if instruction began with the most difficult type of relative clause (object of preposition) rather than the easiest (subject). Thus, teaching the learners the more difficult relative clause structure for object of preposition helped them to acquire easier structures such as indirect and direct object and subject relatives. On the other hand, teaching them subject relatives helped them learn these structures but had no impact on other more difficult structures in the hierarchy.

Another positive aspect of explicit grammar instruction was found for items which are "easy to learn," i.e., have a straightforward form-function relationship, but are difficult to hear in input. Pica (1985), in comparing learners of English as a foreign language with learners of English as a second language who had never had formal instruction, found that instruction appeared to influence production of some structures, but had little effect on others: For plural -s, instructed learners were more accurate than uninstructed learners, who showed greater use of quantifiers with base forms, e.g., three book. For progressive -ing, instructed learners overgeneralized -ing, as in I liking the movie , every day I going home for lunch, I want to seeing you. Uninstructed learners omitted -ing or produced target-like structures. For article a, both instructed and non-instructed learners tended to follow the sequence: a little, a lot, a few > read a book, saw a movie, > with a friend, on a chair.

Given their findings, how might researchers respond to teachers' questions about whether or not explicit grammar instruction is necessary for their students? The effectiveness of grammar instruction appears to depend largely on selection and sequencing of grammar rules and careful assessment of learner readiness. Some items are better off not taught, while the learning of others is enhanced, indeed accelerated, through instruction. Research on grammar instruction has thus begun to explain why learners often "do not learn what teachers teach" (to quote Allwright 1988) and yet master other forms and features quite effectively. So far, a little bit has been uncovered about German and English grammar rules, and some basic principles have been advanced regarding rule selection and sequencing for grammar instruction. There remains an enormous amount of research to be done, however, within individual languages and across different grammatical rules and structures.

6. Should students drill and practice new structures?

Under the influence of the communicative approach to language teaching, drill and practice in the classroom have waned in recent years. A number of studies in second language acquisition appear to support this practice. A recent diary study by Schmidt, who studied Portuguese as a second language in Brazil (Schmidt and Frota (1986), found that many structures, drilled extensively in class, were not carried over into daily conversation. Other structures, although drilled minimally, were used frequently and correctly outside the classroom. It appeared that structures which did not carry over from classroom drill were absent in everyday input or were present in input, but went *unnoticed* by the learner.

Research focused on the role of imitation in language learning (by Eisenstein, Bailey and Madden 1983), revealed positive results for this drill-related activity. During self-production tasks, learners appeared to operate within the current developmental state of their own grammar, and had opportunities to avoid structures and lexis not yet within their control. During an imitation task, on the other hand, learners had to reconstruct their interlocutor's grammar and meaning, and thus produce new structures not quite within their current capacity. The imitation aspect of drill, therefore, seemed to assist learners to attempt structures not quite within their current repertoire and, in effect, help to move them along the acquisition process rather than confine them within the limits of their current repertoire.

Lest we get too enthusiastic about the contributions of drill and practice to language learning, we need to remind ourselves about the importance that has been associated with comprehensible input as the key to successful language learning. Now that teachers have a fairly good idea of ways in which input is made comprehensible, i.e., by a focus on meaning, through linguistic modifications, and within a climate of interaction, they also need to know whether comprehensible input is all that is necessary for successful second or foreign language acquisition and if not, how drill, practice, and other opportunities for learner production can enhance the learning process.

Responding to this question can be accomplished by following the line of research established by Merrill Swain (1985). Swain looked at Canadian Immersion learners who (presumably) had extensive comprehensible input because their L2 exposure was embedded in meaningful subject-matter content. She found that such learners acquired much higher receptive than expressive language skills. Opportunities to hear comprehensible input appeared necessary, but not sufficient

for their successful language acquisition. In generalizing from this result, Swain argued that learners can often understand the meaning of contextualized input without understanding its structure, but to express themselves comprehensibly, they must provide a grammatical structure for their utterances. For Swain, opportunities to hear comprehensible input are simply not enough to insure their successful language acquisition, but learners need opportunities to modify their interlanguage production, i.e., produce comprehensible output as well.

Although Swain's claim is theoretically plausible, Pica (1987) found that the goal of comprehensible output for learners was somewhat impractical. She found that beginning learners had limited opportunities to modify their output because when they had difficulty making their interlanguage comprehensible, their interlocutors tended to model correct versions of their interlanguage productions for them. The learners then needed only to acknowledge the model versions of their interlocutor rather than attempt their own modifications toward target-like use. Pica found, for example, that if the learner said I many fren, their native speaker interlocutor would reply: you have many friends? . All the learner needed to say in response was yes; this eliminated any need for learners to adjust their interlanguage syntax and vocabulary in order to make themselves understood. Since the native speaking interlocutors in Pica's study were teachers, it was believed that this result was due to features of teacher speech. This possibility suggested both a warning to teachers about their use of modelling and further, a need for follow-up research on ways in which conditions could be made more conducive to learners' output modification.

In such a follow-up study (Pica, Holliday, Lewis, and Morgenthaler 1989), in which teachers were excluded from the native speaker interlocutor selection process, it was found that learners' modification of their L2 output was much more prevalent, but that this was related to the nature of the task on which they worked with the interlocutor, the nature of the request made by the interlocutor, and the learner-interlocutor gender pairing. Thus, learners made more interlanguage adjustments on information-gap tasks in which they were required to draw a picture then describe it so that it could be replicated by their interlocutor. In addition, interlocutors' open-ended clarification requests such as what did you say? were more conducive to learners' modifications than confirmation checks such as you said book?, this latter more often than not responded to with yes. Finally, it was found that male learners made more adjustments in their L2 production than females, especially during open-ended discussion. However, since all NS interlocutors studied

were female, this left open the possibility that results were due more to gender pairing than to learner gender in itself.

These results have a great deal to say to language teachers, given typical language classroom conditions: use of activities in which it is the teacher rather than the learner who holds all the information needed for the activity, teachers' practice of modelling correct versions of student responses rather than giving them time to reformulate and try again, and the current professional climate whereby female instructors predominate in language classrooms. And, as Swain argues, learners must have opportunities to produce comprehensible output *during interaction involving meaningful content* . Such opportunities allow them to modify interlanguage toward greater clarity, to make hypotheses about the L2, and to try to map L2 form onto meaning. Drill and practice of isolated grammatical structures does not seem sufficient in scope for helping learners reach this goal. What research has shown is that indeed no single practice -- from structure drill to open-ended conversation operates in isolation to help or inhibit language learning. The more researchers examine learner production both in and out of classrooms, the more it becomes evident that all classroom practices are mediated by a host of learner, interlocutor, and situational variables.

7. Does correction assist language learning?

One of the most widely held assumptions about the language learning process is that errors indicate learner hypotheses about the target language and that overt correction cannot alter learners' natural path of acquisition (For reviews of this position see Richards 1978, Ellis 1984). Numerous inventories of learner errors have been compiled into the now widely familiar categories of (1) overgeneralization: She has two childrens He teached English Did he teached English, (2) overuse She has one books She liking school, (3) omissions: She is doctor She has three book He teach English, and (4) analogies: We walk with the girls, We follow with the girls. It is believed that in producing these errors, learners are testing hypotheses about rules and patterns in the language they are learning.

Recent theories of Bley-Vroman (1986), Schachter (1984) and White (1987) have argued against the belief that learners' incorrect hypotheses should go uncorrected. They claim that explicit and/or implicit correction (also referred to as "negative input" by Schachter 1984) is essential to a theory that includes hypothesis testing as part of the second language acquisition process. This is because lack of correction may imply to a learner that a non-target-like utterance was inaccurate.

Unless otherwise corrected, learners who have two ways of forming structures in their L1 may be misled to believe that these same two options exist in the L2, even though the L2 allows for one option only. Thus the learner whose first language allowed the same expression for greetings and partings might believe that Hello could be used similarly for both functions in English. However, such a flawed hypothesis would inevitably lead to a communication breakdown between the learner and an interlocutor in the course of everyday social interaction, and therefore it would be corrected quite readily.

More serious, however, would be the learner's mistaken hypotheses about L2 structural features. These can become internalized as rules within the learner's interlanguage grammar since they lead to productions which, although grammatically imprecise, are communicatively functional. For example, if the L1 allowed dative formation with either Prepositional Phrase (PP) (gave a book to the girl) or Indirect Object (IO) (gave the girl the book), but L2 allowed PP only, the learner might assume that: (a) L2 allowed both PP and IO but (b) IO was seldom used. This false hypothesis would lead to ungrammatical IO productions which although awkward-sounding, could be, nonetheless, sufficiently comprehensible to interlocutors to pass uncorrected during in social discourse.

How do these theoretical claims and examples help teachers make informed decisions about correction in the classroom? This is a difficult question to answer since research on the actual practice of classroom correction has shown it to be a highly diversified entity. Correction can be focused sometimes on meaning and other times on structure. It can be provided differentially and unsystematically to and across students, yielding confusing and, at times, contradictory results. Fanselow (1977) found that in Spanish foreign language classrooms, teachers corrected students more frequently for errors in meaning than for errors in grammar. Student answers which teachers treated as errors tended to be those which did not correspond to what the teacher expected to hear from the student. Outside the classroom, Brock, Crookes, Day, and Long (1986) found that correction had no significant effect on destabilizing learners' interlanguage during half hour research sessions. However, when learners were corrected by their interlocutors during communication games, they quickly adjusted their interlanguage accordingly.

Schmidt and Frota (1986) found that although explicit correction had a differential and inconsistent effect on his target-like use of Portuguese L2. In order to benefit from corrections, Schmidt claims that he had to know he was being

corrected. Hearing a corrected version immediately following what he had just said helped him "notice the gap" between his interlanguage and the target Portuguese. Informal (off-record) correction in the form of interlocutor confirmation checks and clarification requests had no discernible effect on internalization of L2 rules and features.

What has been advanced about the role of correction in the learning process appears not only confusing in itself but also to contradict Krashen's claim that comprehensible input is all that is needed for successful second language acquisition. Much of the confusion and contradiction is based on the fact that so little is known about the nature of correction -- or comprehension for that matter -- and its effect on the learning process. As has been noted all along in this paper, a carefully controlled approach to such research is difficult to carry out in the L2 settings which have dominated language learning research. Although there is a great deal of difficulty in any research which attempts to trace the impact of correction on the learning process, foreign language classrooms provide at the moment the best research site for finding answers to this crucial area of language learning.

8. How necessary to learning a language is cultural integration with its users?

This is a question which troubles foreign language teachers, as they work with students in classrooms far removed from the culture of the language they are learning. However, in some respects, second language environments pose problems for cultural integration as well. Just because a learner lives in a country where the language under study is spoken widely in the community does not guarantee opportunities for integration with its users. And even when there are opportunities for integration, language learning is not always guaranteed.

In support of the need for cultural integration in language learning, Schumann (1978) reports on the psychosocial profile of Alberto, whose English L2 development remained virtually unchanged over 10 months of Schumann's research and who revealed *little* adaptation to his U.S. urban community or integration with its speakers. Schmidt (1983) on the other hand, presents the psychosocial profile of Wes, whose English L2 development remained virtually unchanged over several years of Schmidt's research, despite *extensive* adaptation to his U.S. urban community and integration with its speakers. Meisel, Clahsen, and Pienemann (1981) have attempted to sort out these apparent contradictions in the role of

cultural integration in the learning process. Their research showed that acquisition of German L2 word order (as discussed above, under Question 5) followed an invariant path, based on complexity of linguistic features and cognitive processing, whereas acquisition of inflections and functors varied across learners, in correlation with factors of acculturation.

In a recent study, DeKeyser (1986) compared learners of Spanish as a foreign language whose contact with the language came from the classroom with those who also participated in a semester abroad program, with opportunities for cultural as well as linguistic contact. What he found was that greater fluency in Spanish was displayed by the latter group. In an ongoing research project, Freed is examining the long term effects of cultural contact after students return from a study abroad program. Both of these studies will reveal the extent to which exposure to speakers in the actual culture of the language studied affects proficiency and the learning process itself. Attempting to separate the contributions of cultural integration from other factors is difficult to do in a second language context, where learners are exposed to a variety of cultural experiences at the same time they are engaged in formal classroom study. Research on study abroad programs, in which there is a temporal sequencing between and classroom contexts, may perhaps provide the most revealing answers to questions regarding the need for cultural integration in successful language learning.

9. Why do some students have less accurate pronunciation than others and what can be done about this?

Purcell and Suter (1980) present one of the most exhaustive and definite responses to this question:

> The variables which turn out to be important seem to be those which teachers have the least influence on. *Native language*, the most important predictor, from historical accident. Similarly, *aptitude for oral mimicry* seems beyond the control of the instructor; it is doubtful that one can make a good mimic a naturally poor one. ... *Length of residence in a country where the target language is spoken natively* is largely beyond the instructor's control. Finally, while *strength of concern for pronunciation accuracy* might be fortified by an effective teacher, this concern is often the result of personal motivations

> and attitudes established well before the student enters the classroom. (84)

Dickerson (1975) further reminds us of the extensive range of precision possible for learners in their L2 speech sound production. In her study of Japanese L1 learners of English, she found that they did not immediately pronounce English L2 sounds correctly in all linguistic contexts. Instead, they acquired variants and applied them differentially to syllable-initial and syllable-final contexts and in relation to following vowels Gradually, they replaced non-target-like with target-like variants across a increasing number of contexts, e.g., accuracy in pronouncing zoo came earlier than that for please.

What these studies tell the language teacher is that achieving native-like pronunciation is a complex process, largely related to factors beyond the learner's and teacher's control. Yet accurate pronunciation is often viewed as a primary goal in the classroom. A high premium is often placed on accurate pronunciation both as a gross measure of students' progress and an indicator of proficiency in a language. Current research does not appear to validate such a view. For the time being, precise pronunciation may be an unrealistic goal for teachers to set for their students and in their teaching.

10. How can fossilized learners or "terminal twos" be helped to move beyond their current proficiency level?

Many claims have been made as to why many learners, especially adults, do not come to master the rules and features of another language. Higgs and Clifford have used the term "terminal twos" to describe such learners, although the learning phenomenon, itself, is generally referred to as "fossilization." Second language researchers such as Schumann (1978) have argued that limitation of opportunities for integration with a target culture outside the classroom is what brings about such a phenomenon. Higgs and Clifford (1982) have argued that undue emphasis on communicative activities toward building learner fluency results in learners who stabilize at a functional but grammatically inaccurate level of proficiency on the Foreign Service Index. Hence the reference to "terminal twos".

Some researchers have advanced learner-internal explanations for fossilization. Schmidt and Frota (1986), for example, report that fossilized learners who are communicatively functional in L2 do not appear "notice the gap" between their interlanguage and the standard L2 target. Thus, interlocutor confirmation checks and clarification requests may lead the fossilized learner to revise content,

but such moves have no effect on their knowledge of grammatical features. Basing her explanation of the theories of Vygotsky, Washburn (1987) suggests that fossilized learners may lack a 'zone of proximal development' for L2. In other words, unlike learners still capable of developing a second language, fossilized learners may be unable to modify their interlanguage toward accuracy even when supplied with models for them to imitate and to guide their production.

All of these explanations, whether drawn from the learning environment or learners, themselves, point to the need for informed development of instructional materials and procedures for fossilized learners and for ongoing research on the impact of such instruction. If, as claimed by Schmidt and Frota (1986), fossilized learners do not benefit from interlocutor confirmation checks and clarification requests in revising non-target-like grammatical features, there is a need for more grammar based classroom materials. Certainly Higgs and Clifford would agree with such an orientation. So would Yorio (1985), who reports that instruction should proceed from the fossilized learner's strength areas in spoken communication to reading and writing tasks and from contextualized materials and communicative techniques to decontextualized, grammar-oriented instruction. In one study of instructional effects on a fossilized learner, already under way, Sotillo (1987) has found that job-related instruction, as opposed to more general language practice, has had a temporary effect on destabilizing her student's interlanguage toward more target-like use.

Responding to the needs of fossilized learners and of the teachers who work with them seems therefore to depend on finding appropriate materials and procedures and monitoring their impact through careful study. This need opens up a wealth of opportunities for collaborative research between language teachers and researchers.

Overview and prospectus

The research cited represents only a handful of the many recent findings which have contributed helpful responses to teachers' questions about their classrooms of language learners. More answers are sure to come with the aid of future research. Many additional questions confront both teachers and researchers right now; inevitably just as one of these questions is answered, another will be ready to challenge.

Teachers and researchers in urban settings, for example, find themselves increasingly challenged by the linguistic and cultural diversity among children,

adolescents, and adults in schools both in the U.S. and abroad. Many trusted methods for language teaching do not seem to work as well as they once did. Set against pressures to find immediate solutions to students' problems in language and literacy learning is the realization that the research that could help solve those problems takes time and takes teachers away from their work with the very students they want to help.

Challenges also abound as a result of the spread and changing status of languages in an interdependent world. English, for example, has grown from a native, second, or foreign language to become of an international language of business, science, and technology, spoken among more non-natives than natives in the process of their professional pursuits or everyday lives. Surely, this will affect the kinds of learners we will look at in our research and the questions we will ask about them and their language learning. Further, the need for individuals to learn uncommonly taught languages not widely available through classroom courses poses additional challenges for the informed selection of materials and procedures.

Often times, our work as teachers and researchers can seem overwhelming, but by and large it speaks to the tremendous scope and vitality of the field of educational linguistics and its capacity for growth, expansion and longevity. As language teachers and language acquisition researchers, whether veterans or newcomers, we will no doubt continue to rise to the challenges of our professional roles and welcome new challenges that confront us in our work with language learners.

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[2]But see chapters by Pienemann and Lightbown in the edited collection of Hyltenstam and Pienemann, 1984, for some noteworthy exceptions.

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